USSR

GELLER, I. Kh., et al, Tr. Kafedry fiz. Mariysk. ped. in-ta, Yoshkar-Ola, 1970, pp 74-87

Se-rectifier elements. The CdO oxide film in Se elements is one cause of layer separation. Oxidation of the Bi surface on the side of the ohmic contact with the Se also changes the nature of spherulitic crystallization of Se. The presence of a reverse-connected rectifying BiO-Se layer with an Se-CdSe p-n junction significantly changes the static volt-ampere characteristic of the entire system. The acceptor impurity in the Se does not eliminate the anisotropy of the BiO-Se conductivity.

2/2

UDC 621.314.634

USSR

TALIBI, M.A., KRUTENYUK, V.A., KRUTENYUK, YE. G.

"Respective Electrical Parameters Of Selenium Rectifier Elements Of Various Manufacture"

Tr. kafedry fiz. Mariysk. ped. in-ta (Works Of The Physics Faculty. Mariysk Pedagogical Institute), Yoshkar-Ola, 1970, pp 52-65 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B312)

Translation: A survey is made of various works in which various production processes for manufacture of selenium rectifier elements are considered. 4 tab. 54 ref. V.N.

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1/2 040 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--RELATION BETWEEN THE DIMENSIONS OF A SHAFT AND THE CONDITIONS OF AUTOMATICALLY BUILDING UP WITH AN ELECTRODE STRIP -U-

AUTHOR--KRUTIKHOVSKY, V.G., TREGUBOV, G.G.

COUNTRY OF INFO--USSR

SOURCE--AVTOMAT. SVARKA, JA. 1970, 23(1) 25-27

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CARBON, SHAFT, ELECTRODE, WELDING TECHNOLOGY, SURFACE PROPERTY, METAL COATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1211 STEP NO--UR/0125/70/023/001/0025/0027

CIRC ACCESSION NO--AP0107687

UNCLASSIFIED

2/2 040 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107687

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBLEMS ARISING IN THE BUILDING UP OF WORN SHAFTS BY MEANS OF AN ELECTRODE STRIP ARE DISCUSSED THEORETICALLY AND IN THE LIGHT OF EXPERIMENTS WITH C STEEL PLATES. AN EMPIRICAL RELATIONSHIP IS ESTABLISHED BETWEEN THE DIMENSIONS OF THE SHAFT AND THE PARAMETERS OF THE BUILDING UP PROCESS (DENSITY OF THE BUILDING UP METAL, RATE OF FLOW, ETC.). THE EMPIRICAL RELATIONSHIP AGREES WITH THEORY; ANY RESIDUAL SLIGHT DISCREPANCIES ARE ATTRIBUTED TO THE SIMPLIFYING ASSUMPTIONS MAEE REGARDING THE FLOW OF HEAT IN THE SYSTEM.

UNCLASSIFIED

USSR UDC: 681.2.083:531.787.913:531.768

BARBAS, I. G., ZAKHAROV, V. N., ITIN, M. Ye., KRUTIKOV, I. A.

"Use of Semiconductor Strain Gauges for Measuring Accelerations"

Materialy Yubilevn. nauchno-tekhn. konferentsii Dnepropetr. in-ta inzh. zh.-d. transp. (Materials of the Jubilee Scientific and Technical Conference of the Dnepropetrovsk Institute of Railway Transportation Engineers), Dnepropetrovsk, 1970, p 266 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov 70, Abstract No 11.32.448)

Translation: The authors present the design and construction of an acceleration pickup in which semiconductor strain-gauge resistors were used as the sensing elements. The pickup can be used to measure the acceleration of processes with frequencies ranging from 0 to 200 Hz and amplitudes of up to 50 *g* (*g* is the acceleration due to gravity). Consideration is given to the possibility of introducing critical damping of the elastic element of the pickup by various methods, as well as using electrical damping in the amplification channels. The suitability of the given pickup for measuring accelerations of the various elements of rolling stock was checked out on test runs.

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USSR

UDC 541.49+542.91

TETERIN, E. G., SHESTERIKOV, N. N., KRUTIKOV, P. G., and SOLOVKIN, A. S.

"IR-Spectroscopical Study of Uranyl di-n-Butylphosphates"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 780-784

Abstract: Compounds forming during the reaction of di-n-butylphosphoric acid (DBP or NA) in nitric acid solutions, with the composition of $U:NO_3:A$ = 1:0:2, 1:1:4, and 1:1:2 were reinvestigated spectroscopically in the IR range. On the basis of the data obtained, speculations were made regarding the structure of such compounds. It has been stated that DBP acts as a bridge group in reactions with metals in nitric or hydrochloric acid solutions, its functional groups binding various metal atoms.

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USSR UDC 546.791.6 - 38

KRUTIKOV, P. G., and SOLOVKIN, A. S.

"Uranyl Di-n-butylphosphates"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 6, Jun 70, pp 1610-1613

Abstract: Aqueous solutions of di-n-butylphosphoric acid [HA] react with $UO_2(NO_3)_2$ dissolved in water or in molar HNO_3, forming insoluble compounds with the composition UO_2A_2. In this paper the effect of the concentration of HA and HNO_3 on this complex formation was studied, using a 0.2 and a 6 molar aqueous solution of HNO_3. From the 0.2 molar HNO_3 a solid light yellow, almost white, amorphous precipitate with a composition UO_2A_2 was obtained. From the 6 molar HNO_3 dark yellow viscous liquids were obtained, which, when washed with water, turned into a glassy substance with a composition of $UO_2(NO_3)(HA_2)$, $UO_2(NO_3)(HA_2)(HA_2)$, or their mixture. These two products are interconvertible: the viscous material gives the solid when placed in a 0.2 molar HNO_3, and conversely the solid will turn into

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USSR

KRUTIKOV, P. G., et al, Zhurnal Neorganicheskoy Khimii, Vol 15, No 6, Jun 70, pp 1610-1613

glass when treated by 6 molar HNO_3. Data on solubility of the isolated complexes in n-decane, in a mixture of HA and n-decane, and in 0.2 and 6 molar HNO_3 are reported. It is proposed that uranyl may be extracted from nitric acid media by means of the HA solutions in n-decane.

2/2

Hematology

USSR UDC 615.387.012:663.63.065/.07:612.111-086.3

TERENT'YEVA, E. I., VINOGRAD-FINKEL', F. R., TALELENOVA, N. N., and KRUTIKOV, V. A., Cytology Laboratory and Laboratory of Blood Preservation, Central Institute of Hematology and Blood Transfusion, Ministry of Health USSR, Moscow

"Electron-Microscope Study of Erythrocytes of Whole Blood Rapidly Frozen in Liquid Nitrogen with Polyvinylpyrrolidone"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 15, No 4, 1970, pp 20-25

Abstract: It had been established that in freezing whole blood it is best to use concentrated solutions (50%) of polyvinylpyrrolidone (PVP) (1 part solution per five parts blood), because the amount of ice that is formed decreases and the damage to erythrocytes is reduced. It is advisable to retain the initial hematocrit value of the blood as far as possible. Use of a 50 percent solution of PVP in an 0.7 percent NaCl solution containing small amounts of glucose and Na citrate was recommended. Whole blood containing a protective solution of PVP was frozen rapidly at the temperature of liquid N_2 (-196°C) and stored at that temperature for 1 hr - 12 mos. Erythrocytes of the stored blood were examined under an electron microscope after 1 hr, 1 month, and 3, 6, and 12 months of storage. After 1 hr of storage, the ultrastructure of 84-85 percent of

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USSR

TERENT'YEVA, E. I., et al, Problemy Gematologii i Perelivaniya Krovi, Vol 15, No 4, 1970, pp 20-25

erythrocytes did not differ from that of erythrocytes in donor blood not treated with PVP or preserved by freezing. The ratio of erythrocytes with unchanged structure remained at the same level of approximately 85 percent until the end of the 12-month period of storage at -196°C.

USSR

KRUTIKOV, V. F., SIMKIN, M. I., and STEPANOV, V. G.

"EPR Spectra of Cd^+ Ions in the $^2S_{\frac{1}{2}}$ State in K_2SO_4 Crystals"

Leningrad, Fizika Tverdogo Tela, vol. 13, No. 10, October 1971, pp 3100-3102

Abstract: This paper investigates the EPR spectra of Cd^+ ions stabilized by x-rays in the $^2S_{\frac{1}{2}}$ state in K_2SO_4 monocrystals. Observations were also made of Hg^+ EPR spectra in K_2SO_4. However, attempts to observe Zn^+ ion spectra in the K_2SO_4 crystal proved unsuccessful. The crystals with the cadmium impurity were obtained from a water solution through slow evaporation. These specimens had Cd concentrations of 0.3 to 3%, and their crystals were irradiated by x-rays in a URS-70 equipment with a BSV-2 tube of 50 kv and 15 ma. The spectra measurements were made in the ranges of 3 cm and 8 mm at the temperature of liquid nitrogen. The EPR spectra were obtained at room temperature. It is noted that Cd^+ EPR spectra were not observed in specimens irradiated at 77° K. The spectra are reproduced in the article, and a table of spin

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USSR

KRUTIKOV, V. F., et al., Fizika Tverdogo Tela, vol. 13, No 10, October 1971, pp 3100-3102

Hamiltonian parameters for paramagnetic centers of Cd^{+} in K_2SO_4 is given. Gratitude is expressed to T. B. Bogatova for growing the crystals and to R. Yu. Abdulsabirov and L. A. Trofanchuk for their assistance with the experiment. The authors are associated with the Kazan State University imeni V. I. Ul'yanov-Lenin.

2/2

USSR UDC: 621.317.741

MODEL', A. M., KRUTIKOV, V. I., KOLONIKIN, N. B.

"A Device for Measuring Small Losses"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 278796, Class 21, filed 24 Apr 69, p 47

Abstract: This Author's Certificate introduces a device for measuring small losses in waveguide elements. The device consists of an oscillator, a waveguide resonance ring with variable phase shifter, and a directional coupler. As a distinguishing feature of the patent, measurement precision is improved and the working frequency range is extended by making the directional coupler in the form of two opposed polarization selectors with a polarization rotator on a circular waveguide connected between them.

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1A0043550 KRUTIKOV V.I. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

242255 WAVEGUIDE ROTARY COUPLING in which two waveguide sections equipped with metal pyramids are linked by a coaxial line containing attenuating channels (6), (7). Improved matching is obtained by the provision of capacitative sleeves (8), (9) at a distance equal to an odd multiple of quarter wavelengths. The length of the coaxial line equals to the multiple of half wavelengths of the second waveband.

28.12.67 as 1206471/26-9. A.M.MODEL, V.I. KRUTIKOV. (16.9.69.) Bul 15/25.4.69. Class 21a^4, Int.Cl.H 01 p.

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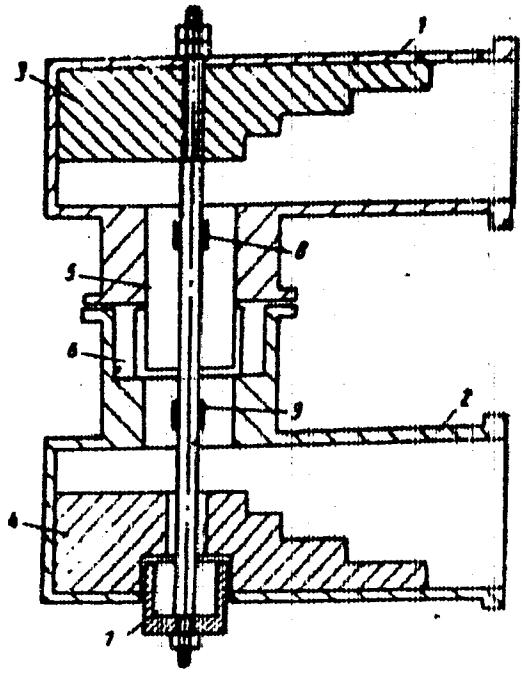
AA0043550



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19761994

AA0052634 KRUTIKOV V I UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/10

240787 AERIAL-FEEDER PATH. A passive and active communication between satelite and earth and vice versa can be quickly established by using a system comprising an aerial 1, movable by 90° polariser 2, circular waveguide 3, rectangular waveguide 4, dividing filter receiver-transmitter 5 and switches 6 and 7 of transmitters and receivers. 28.12.67. as 1206469/26-9. V.D.KUZNETZOV et alia. (29.8.69.) Bul.13/1.4.69. Class 21a4. Int.Cl. H01p.

Kuznetsov, V. D.; Model', A. M.; Krutikov, V. I.

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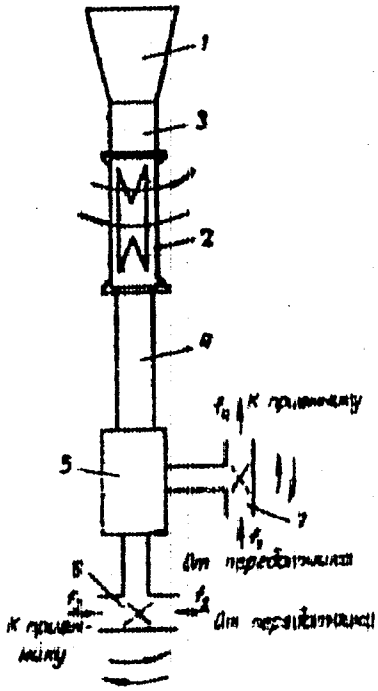
AA0052634



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19821352

Acc. Nr: AP0049170 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: 44P0080

K

99979x Synthesis of some O-alkylthiono carbamate derivatives. Ryaboi, V. I.; Krutikov, V. K.; Konev, V. A. (USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 210–11 (Russ). Prepn. of title compds., ROCSNHR^1 (I), flotation reagents, is described. I (R = Pr, or Bu; R^1 = Ac) were prepd. from *O*-alkylthiocarbamate with excess Ac_2O. Thus, 11.9 g propylthionocarbamate was heated 3 hr with 47 ml Ac_2O on a water bath to give 92.3% I (R = Pr, R^1 = Ac), m. 62–3° (petroleum ether). Similarly prepd. was 90% I (R = Bu, R^1 = Ac), m. 56.5–7.5° (petroleum ether). I (R = Bu, R^1 = Bz), m. 57–8°, was prepd. in 82% yield by refluxing 20 g benzoyl isothiocyanate with 17 ml BuOH and 8 ml toluene. I (R = Bu, R^1 = $ClH_2CH_2NH_3Cl$) (III) was also prepd. Thus, 18.8 g K butylxanthogenate in 20 ml H_2O was treated with 12.5 g NaO_2CCH_2Cl in 30 ml H_2O, kept overnight, and 60 g 30% ethylenediamine (IV) added to give 34% III, m. 176–7° (decompn.). If only 6 g IV was added (1:1 mole ratio), 84% I (R = Bu, R^1 = $ClH_2CH_2NHC(S)OBu$), m. 64–5° (benzene), was formed. I. Hadus

REEL/FRAME 19800977

Ref. Code: UR 0463

Acc. Nr: AP0044694

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol. 4, Nr 1, pp 76-96

TRE PRIMARY STRUCTURE OF VALINE TRANSFER RNA 1. 3. THE RECONSTRUCTION OF THE MOLECULE

Mirzabekov, A. D.; Aksel'rod, V. D.
Venkstern, T. V.; Li, L.; Krutilina, A. I.; Ilyev, A. A.

Institute of Molecular Biology, Academy of Sciences, USSR, Moscow

The final stages of analysis of the valine tRNA 1 from *Saccharomyces cerevisiae* and the reconstruction of the molecule is described. Large fragments (metamers) were obtained from the separated 3'- and 5'-halves of $tRNA^{Val}_{1}$ and their oligonucleotide composition was determined by means of a microchromatographic method. The $tRNA^{Val}_{1}$ primary structure was formulated.

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REEL/FRAME
19771428

Acc. Nr: AP0014697 Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1, pp 97-109

THE PRIMARY STRUCTURE AND SOME PHYSICAL PROPERTIES OF YEAST VALINE TRANSFER RNA 3

A. I. KRUTILINA, A. D. MIRZABEKOV, T. V. VENKSTERN and A. A. BAYEV

Institute of Molecular Biology, Academy of Sciences, USSR, Moscow

Valine transfer RNA 3 was isolated from *Saccharomyces cerevisiae*. Its content was 0.3 per cent in the total tRNA and 5—7 per cent in the valine tRNA. The purity of the preparation was 75—80 per cent. The partial analysis of pyrimidyl- and guanyl-RNAse oligonucleotides of $tRNA_3^{Val}$ revealed the nucleotide sequence of $tRNA_3^{Val}$ to be probably the same as compared with that of $tRNA_1^{Val}$. Chromatography on MAK (methylated serum albumin sorbed on kieselgel) column, gel filtration on Sephadex and melting curve determination of

12 REEL/FRAME 02

19771431

AP0044697

$tRNA_3^{Val}$ and $tRNA_1^{Val}$ gave identical results. The distribution coefficients of $tRNA_1^{Val}$ and $tRNA_3^{Val}$ in isopropanol-formamide-phosphate bufer, pH 6.0, were the same. Thus the physical properties of $tRNA_1^{Val}$ and $tRNA_3^{Val}$ after their purification had no significant differences. The different behavior of $tRNA_1^{Val}$ and $tRNA_3^{Val}$ in the countercurrent distribution system may be explained by the assumption that $tRNA_3^{Val}$ is an unstable physical modification of $tRNA_1^{Val}$.

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19771432

fbc

UDC 632.95

USSR

KRUTITSKAYA, M. N., KOL'TSOV, N. S., TRIKHANOV, M. D., SHOGAM, S. M., DAVYDOVA, A. N., YEGOROVA, I. L., and KUZOVLEVA, M. V.

"Method of Preparing Calcium Tetrathionate"

USSR Authors' Certificate No 264363, filed 27 Dec 68, published 4 Jun 70 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N588P)

Translation: CaS_4O_6 (I) is obtained in an $H_2S_4O_6$ medium by the oxidation of calcium thiosulfate (II) with perhydrol, taken in 10% excess, at 10-12°. 52 g II are added in the course of 1 hr to a 13.5 ml, 27% solution of H_2O_2, cooled to 10°, to which 96 ml $H_2S_4O_6$ (concentration 235 g/l) was added beforehand. The resultant suspension is filtered out from traces of sulfate; the filtrate is evaporated in vacuum, and the residue crystallized. 23 g of 98% dihydrate of I is obtained. The mother liquor remaining after crystallization is used to prepare $H_2S_4O_6$.

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1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CALCIUM TETRATHIONATE PREPARATION -U-

AUTHOR-(05)-KRUTITSKAYA, M.N., KOLTSOV, N.S., TAIKHANOV, M.D., SHOGAM, S.M., DAVYDOVA, A.N.
COUNTRY OF INFO--USSR

SOURCE--USSR 264,363
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(9)
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, CALCIUM COMPOUND, THIOSULFATE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1779 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130612
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 008

CIRC ACCESSION NO--AA0130612

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CA TETRATHIONATE IS PREPD. BY OXIDIZING CA THIOSULFATE WITH PERHYDROL IN TETRATHIONIC ACID.

UNCLASSIFIED

USSR UDC 542.97:547.263:546.11:547.594.3

SHARF, V. Z., FREYDLIN, L. KH., KRUTII, V. N., LYSYAK, T. V., Institute of Organic Chemistry Imeni N. D. Zelinskii, Acad. Sc. USSR

"Investigation of the Homogeneous Hydrogen Transfer From 2-Pentanol to Cyclohexanone in the Presence of Tris(triphenylphosphine)-dichlororuthenium and a Base"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, pp 2195-2198

Abstract: Base accelerates the reduction of cyclohexanone through hydrogen transfer from 2-pentanol as well as its hydrogenation and condensation in presence of the tris(triphenylphosphine)dichlororuthenium complex. The hydrogen transfer reaches a maximum at a base concentration of $1.64 \cdot 10^{-3}$ M/l under argon atmosphere and at $4.08 \cdot 10^{-3}$ M/l under hydrogen. The degree of hydrogenation of the ketone by hydrogen and its condensation increase with increasing concentration of the base. Raising the temperature from 50 to 84°C results in a higher rate of hydrogen transfer; the rate of hydrogenation reaching a maximum at 70°C. This evidently is due to the formation of various intermediate complexes catalyzing these processes. The duration of the process has practically no effect on all of the processes discussed.

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Physiology

USSR

KRUT'KO, V. N., Moscow Physical Technical Institute

"Accelerations Affecting Brain Structures During Movement of the Head"

Moscow, Biofizika, Vol 16, Vyp 4, Jul/Aug 71, pp 739-742

Abstract: Mathematical equations are established with which the average angular accelerations of the human head along the horizontal, frontal, and sagittal planes affecting the various segments of the cranium and the brain, located at different distances from the center, are calculated. A geometric model of the results indicates that areas affected by equal accelerations in the frontal plane form concentric rhombuses, those in the sagittal plane form concentric hyperbolas, and those in the horizontal plane form segments of concentric ellipses. The system is symmetrical with respect to the center of the XYZ coordinates. The mathematical and geometric models are also applicable to animals with flexible necks.

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USSR UDC: 621.376.2

BARZHIN, V. Ya., KRUTOFALOV, E. B., PETROV, A. F., RONDIN, Yu. P., KOSHAR-NOVSKIY, G. V.

"A Device for Increasing Depth of Modulation"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 12, Apr 71, Author's Certificate No 299936, Division H, filed 11 Aug 69, published 25 Mar 71, p 204

Translation: This Author's Certificate introduces a device for increasing depth of modulation containing a push-pull amplifier with transformer input, and an amplitude detector. In the collector circuit of the amplifier is a tank circuit tuned to the carrier signal frequency. As a distinguishing feature of the patent, depth of modulation is increased with simultaneous signal amplification, and the depth coefficient is made independent of the amplitude of the input signal by connecting the above-mentioned amplitude detector between the primary winding and the centertap of the secondary winding of the input transformer of the push-pull amplifier.

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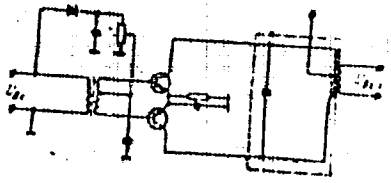
BARZHIN, V. Ya. et al., USSR Author's Certificate No 299936



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AA0040634

Soviet Inventions Illustrated, Section II Electrical, Derwent, UR 0482

AUTHORS: Vityuk, K. T.; Fel', Yu. I.; and Krutogolov, L. G.

233076 VOLTAGE REGULATION CIRCUIT on three phase loads includes thyristors (1) in a reverse connection with diodes (2), three phase step-down transformer (3) and three single-core half-wave magnetic amplifiers (7). Full-wave rectifier (9) is connected to secondary winding (4) through resistors (8) and its dc circuits includes variable resistor (10). The power windings of the magnetic amplifiers lead to transistors (12), the bases of which receive a voltage from secondary winding (6) and the control windings lead to resistors (8).

2.8.66. as 1095714/24-7, VITYUK, K.T. et al. Leningrad Inst of Water Transport. (18.4.69) Bul. 2/18.12.68. Class 21d2 Int. Cl. H 02p.

Leningradskiy Institut Vodnogo Transporta

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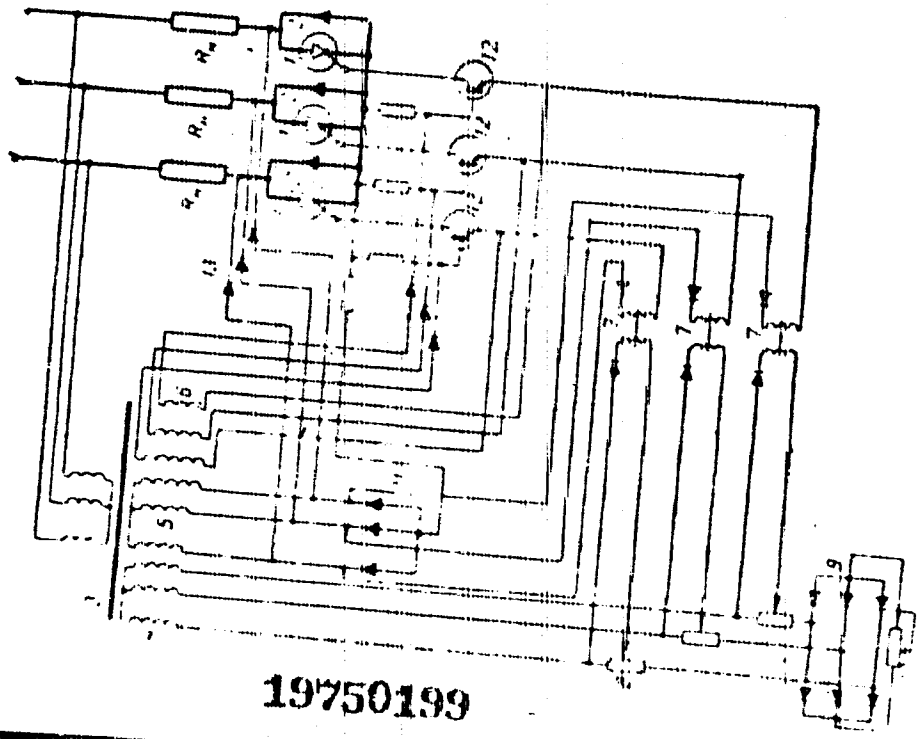
AA0040634



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19750199

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ON THE ELECTRIC MULTIPOLE RADIATION OPERATOR -U-

AUTHOR-(02)-KRUTOV, V.A., SAVUSHKIN, L.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1744-1747

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MULTIPOLE ORDER, QUANTUM THEORY, ELECTRON SPIN, CHARGED PARTICLE, X RAY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2232 STEP NO--UR/0056/70/058/005/1744/1747

CIRC ACCESSION NO--AP0127594

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 027

GIRC ACCESSION NO--AP0127594

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EMISSION BY A MULTIPOLE OF THE ELECTRIC TYPE IS CONSIDERED WITHOUT MAKING RECOURSE TO THE LONG WAVELENGTH APPROXIMATION. THE ANALYSIS IS CARRIED OUT FOR QUANTUM TRANSITIONS OF SPIN ONE HALF CHARGED PARTICLES DESCRIBED BY THE DIRAC EQUATION. CORRECTIONS TO THE LONG WAVELENGTH APPROXIMATION ARE CALCULATED FOR THE PARTICULAR CASE OF X RAYS FROM HEAVY ATOMS. THE CORRECTIONS ARE QUITE LARGE FOR Z EQUALS 92. FACILITY: NAUCHNO-ISSLEDOVATEL'SKIY FIZICHESKIY INSTITUTE, LENINGRADSKOGO GOSUDARSTVENNOGO UNIVERSITETA.

UNCLASSIFIED

UDC 690:624.131.23

USSR

KRUTOV, V. I., TOKAR', R. A.

"Experience in the Construction and Utilization of Buildings and Structures of the South-Tube Metallurgical Plant in Nikopol on Slumping Soils"

Moscow, Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 27-29

Abstract: Thirty years of experience at the site of the Nikopol South-Tube Metallurgical Plant which was built on highly slumping ground are discussed. The plant is located on the right bank of the Dnepr at a distance of 2-5 km from the river. Actual data on the rise in the level of ground water and on the settling of the buildings are given. The level of ground water before the beginning of the construction of the plant was at a depth of 32-40 m and usually coincided with the sand cover. In subsequent years it rose to a depth of 22-28 m due to construction of a reservoir and the outflow of water from the plant. The slumping properties of the loess soils in the vicinity of the factory varied in shape and especially in depth. The effect of the rise in the ground water level on the settling of the built-up area from buildings and structures placed on it using different types of bases and foundations is analyzed. It was found that

USSR

KRUTOV, V. I., TOKAR', R. A., Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 27-29

since settling of the area from the natural weight of the ground occurs relatively uniformly, even very large settling of individual foundations of up to 600-989 mm does not lead to serious disruption of the normal utilization of the buildings. Local settling of the ground under accidental wetting by industrial waters had a considerably greater effect on the utilization of the structures. In the absence of local wetting the settling of foundations located close together was practically the same and independent of the type of foundation and preparation of the base.

2/2

UDC 629.7.05.001.2(042)

USSR

Petrov, B. N., Rutkovskiy, V. Yu., Ir teva, I. N., Zemlyakov, S. D.

IRINTSIIY POSTROYENIYA I PROYEKTIROVANIYA SAMONASTRAIVAYUSHCHIKHSYA SISTEM UPRAVLENIYA (Principles of Building and Planning Adaptive Control Systems) Moscow, "Mashinostroyeniye" 1972, 200 pp, illus, biblio, 5,300 copies printed

The book presents a brief analysis of the principles of building, the fundamentals of planning, methods of synthesizing and carrying model-reference ("nontracking") adaptive control systems, which are most widely used in flight control of aircraft.

The book is intended for use by engineers and scientific workers engaged in the planning of automatic control systems, and can also be of use to students in the advanced courses at the VUZ level.

No mention is made of any particular ACS for any specific aircraft or missile system. The various types of adaptive systems are illustrated by block diagram only.

The first 99 items in the 124-item bibliography are Russian-language sources, the remaining 25 items are English-language sources.

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USSR

PRINTSIPY POSTROYENIYA I PROYEKTIROVANIYA SAMONASTRAIVAYUSHCHIKHSYA SISTEM UPRAVLENIYA (Principles of Building and Planning Adaptive Control Systems), Petrov, Rutkovskiy, Krutova and Zemlyakov, Moscow, 1972, 260 pp

Contents

UDC 539.293

USSR

KRUTSILO, I. K., MIROSHNICHENKO, F. D., GRITSAY, F. Ye., MOROZOV, V. N.,
Zaporozh'ye State University

"Magnetostriction of Porous Nickel Films"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No. 7, 1972,
pp 141-143

Abstract: The magnetostriction of porous cermet nickel films was investigated. In the opinion of the authors there has been insufficient attention given to magnetic studies of these materials, although one should expect original magnetic properties in such materials, with their unusual internal structure. The material used was PNK-1 industrial carbonyl nickel powder. After rolling, the tape obtained was baked in a protective atmosphere of dissociated ammonia for 40 min. Films with a porosity of 8, 22, 23, and 34% were obtained after rolling, since the centering was done at different specific pressures. Samples of dimensions 6 × 30 mm^2 were cut from these films; samples with a porosity of 8% had a thickness of 0.25, those with a porosity of 22% had a thickness of

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USSR

KRUTSILO, I. K., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No. 7, 1972, pp 141-143

0.11, those with a porosity of 23% had a thickness of 0.1, and those with a porosity of 34% had a thickness of 0.14 mm. The magnetostriction of the samples was measured by the opticomechanical method with a sensitivity of $1.1 \cdot 10^{-6}$ mm^{-1}. A new form of magnetostriction was observed in the film. As distinct from compact nickel, this magnetostriction is positive, being unsaturated in fields up to 1400 oe, and it exceeds λ_s of nickel by several factors. The existence of magnetocharge and positive tensomagnetostriction was shown in the samples. It was also shown experimentally that the magnetostriction of fabricated parts depends not only on the λ_s of the material but also on the mutual position and configuration of these parts.

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UNCLASSIFIED PROCESSING DATE--23OCT70

1/2 038

TITLE--EFFECT OF SURFACE OXIDE FILMS ON THE MAGNETIC PROPERTIES OF TRANSFORMER STEELS -U-

AUTHOR-(04)-PROKOPCHENKO, YE.A., MIROSHNICHENKO, F.D., KRUTSILO, I.K., MUSHTAYEV, V.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 267-71

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, MAGNETIC PROPERTY, TECHNICAL STANDARD, STEEL SHEET, OXIDATION, SILICON ALLOY, SINGLE CRYSTAL, ANISOTROPY, ETCHED CRYSTAL, COLD ROLLING, OXIDE FILM/(U)GOST E330 TRANSFORMER STEEL, (U)GOST E330 TRANSFORMER STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0048/70/034/002/0267/0271

PROXY REEL/FRAME--1994/1926

CIRC ACCESSION NO--AP0115740

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 038

CIRC ACCESSION NO--AP0115740

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SERIES OF EXPTS. WAS PERFORMED TO STUDY THE EFFECT OF SURFACE OXIDE FILMS 3-5 MU THICK, OBTAINED BY THERMAL OXIDN. IN AIR, ON THE REDISTRIBUTION OF DISLOCATION IN AND THE MAGNETIC PROPERTIES OF SOVIET TRANSFORMER STEELS GOST E320 AND E330. PLATE SPECIMENS 250 TIMES 20 TIMES 0.35 MM CUT OUT OF COLD ROLLED TRANSFORMER STEEL PLATES AT ANGLES OF 0, 55, AND 90DEGREES WITH RESPECT THE THE ROLLING DIRECTION WERE SUBJECTED TO MAGNETIC MEASUREMENTS AND EXPOSED TO AIR AND (OR) HIGH PURITY AR AT VARIOUS ELEVATED TEMPS. THEN THE FILM THICKNESS WAS DETD. AND THE MAGNETOSTRICTION, COERCIVE FORCE, REMANENT INDUCTION, AND SP. MAGNETIC LOSSES OF THE SPECIMENS WERE MEASURED AGAIN. ANISOTROPY OF THE MAGNETIC PROPERTIES WAS ALSO STUDIED AS THE SPECIMENS CUT AT THE 3 DIFFERENT ANGLES (LONGITUDINALLY, TRANSVERSELY, AND AT 55DEGREES) FROM THE ENROLLED PLATE WERE CONSIDERED TO BE QUASI SINGLE CRYSTALS CUT ALONG THE (100), (110), AND (111) CRYSTALLOGRAPHIC PLANES, RESP. IN SUPPLEMENTARY EXPTS. THE THICKNESS OF THE OXIDE FILM WAS CHANGED BY ETCHING OR ADDNL. ANNEALING. THE PRESENCE OF AN OXIDE LAYER ON THE SURFACE OF THE FEST ALLOYS IMPROVED THEIR MAGNETIC PROPERTIES FROM THE STANDPOINT OF TRANSFORMER APPLICATION, LOWERING THEIR MAGNETOSTRICTION, COERCIVE FORCE, REMANENT INDUCTION, AND SP. LOSSES. AN ANISOTROPY OF THE EFFECT OF THE SURFACE FILM ON THE MAGNETOSTRICTION AS WELL AS ON THE OTHER MAGNETIC PARAMETERS OF THE TRANSFORMER STEELS WAS FOUND. FACILITY: ZAPOROZH. GOS. PEDAGOG. INST., ZAPOROZHE, USSR.

UNCLASSIFIED

UDC 547.548.1

USSR

TSIVUNIN, V. S., ZHELYAGINA, L. V., and KRUTSKIY, L. N., Kuzbassk Polytechnical Institute

"Reaction of Triphenylphosphine with α,β-Unsaturated Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, p 439

Abstract: Reaction of triphenylphosphine with acrylic, methacrylic, and cinnamic acids yields phosphobetaines. Acrylic and methacrylic acids react smoothly overnight in benzene with about a 30% yield. Cinnamic acid reacts much slower, and the yield is poorer. The structure of the products was confirmed by IR analysis and parallel synthesis.

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UDC 547.241

USSR

KRUTSKIY, L. N., ZYKOVA, T. V., SALAKHUTDINOV, R. A., TSIVUNIN, V. S., Kazan' Institute of Chemical Technology imeni S. M. Kirov; Kuzbass Polytechnical Institute

"reaction of Diethylaminoethylchlorophosphine with Allyl Iodide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1493-1496

Abstract: Equimolar quantities of diethylaminoethylchlorophosphine and allyl iodide were mixed, and the resultant adduct was decomposed with hydrogen sulfide in ether. The solid adduct changed into a liquid (insoluble in ether) which was then dissolved with simultaneous formation of an ammonium salt. After removing the salt from the filtrate, ethylallylthiophosphonoyl chloride was obtained, yield: 42%. Reaction of the acid chloride with alkoxides gives ethylallylthiophosphinates. Sulfur dioxide treatment of the adduct in ether produces a liquid which is insoluble in ether. The liquid dissolves upon hydrochlorination with simultaneous formation of diethylamine hydrochloride and liberation of elemental iodine. Ethylallylphosphonoyl chloride heavily contaminated with iodine is isolated from the filtrate in 25% yield. Chemical shifts of a series of trivalent phosphorus chlorides are examined, and the π-contributions to the shielding constant of the phosphorus nucleus are calculated. The results of the study indicate an increase in the positive

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USSR

KRUTSKIY, L. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1493-1496

charge on the phosphorus atom and a reduction of donor properties with corres - ponding substitution of the alkyl radical by electronegative nitrogen and chlorine atoms.

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USSR

UDC 547.26'118

TSIVUNIN, V. S., KRUTSKIY, L. N., ERNAZAROV, and KAMAY, G. Kh.

"The Reaction of Diethylamidoethylphosphonous Acid Chlorides and Ethyldichlorophosphine, With the Orthoformic Ester and Acetic Aldehyde Diethyl Acetal"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2560-2563

Abstract: For a comparison of the electrophilic properties of the diethylamidoethylphosphonous acid chloride and those of the halides of trivalent phosphorus, the authors studied the above reaction.

It was found that ethyldichlorophosphine reacts vigorously with the orthoformic ester, to form the ethyl ester of ethyldiethoxymethylphosphinic acid, and with the diethyl acetal of acetaldehyde to form (depending on the ratio of reagents) the ethyl ester or the acid chloride of ethyl-1-ethoxyethylphosphinic acid. Alcohols react with the latter to produce the esters of ethyl-1-ethoxyethylphosphinic acid, and also the acid itself. It was also found that the diethylamidoethylphosphinic acid chloride, as distinct from ethyldichlorophosphine, reacts with the orthoformic ester, but is practically inactive with respect to the diacetal of acetaldehyde.

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USSR UDC: 632.95

TSIVUNIN, V. S., KRUTSKIY, L. N., and KAMAY, G. Kh., Kazan' Chemical-Technological Institute im. S. M. Kirov

"A Method for Preparing Alkylalkoxyalkylphosphinic Acid Esters"

USSR Author's Certificate No 258307, filed 16 Dec 68, published 28 Apr 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N639 P by T. Ya. Ogibina)

Translation: A method is suggested for preparing physiologically active ethylethoxymethylphosphinic acid esters (I). A mixture of 0.12 mole of diethylamide chloride of ethylphosphonous acid and 0.12 mole of chloromethylmethyl ether is heated to 50 to 60° for 7 hours and then decomposed with a weak current of SO_2. 100 ml of ether is added, HCl (gas) passed through, and after about 16 hours 11.6 g of the acid chloride of I (II) removed, $C_5H_{12}ClO_2P$, boiling point 91-93°, $n^{20}D$ 1.4642, d_4^{20} 1.1513. 0.1 mole of MeOH is added to a solution of 0.053 mole of II in 40 ml of C_6H_6 at 20°. The mixture is kept at about 20° for 20 min, producing 4.65 g of I ester, $C_6H_{15}O_3P$, boiling point 96-7°/3, $n^{20}D$ 1.4385, d_4^{20} 1.0524. I ethyl ester, $C_7H_{17}O_3P$, is prepared in a similar fashion, boiling point 92-3°/2, $n^{20}D$ 1.4364, d_4^{20} 1.0232.

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USSR UDC 547.241

TSIVUNIN, V. S., KRUTSKII, L. N., KAMAI, G. Kh.

"Reaction of Dietylamide of Ethylphosphonous Acid Chloride with Acetyl Chloride and Benzoyl Chloride"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1421-1422

Abstract: Diethylamide of ethylphosphonous acid chloride reacted with acetyl or benzoyl chloride to yield ethyldichlorophosphine and the diethylamide of the corresponding carboxylic acid. Whereas in the reaction with acetyl chloride some heat is evolved, no such effect was noted in the reaction with benzoyl chloride.

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1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--REACTION OF N,N,DIETHYLETHYLPHOSPHONAMIDIC CHLORIDE WITH CHLOROMETHYL ALKYL ETHERS -U-

AUTHOR-(03)-TSIVUNIN, V.S., KRUTSKIY, L.N., KAMAY, G.KH.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 597-603

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, AMINE DERIVATIVE, CHLORINATED ORGANIC COMPOUND, ALIPHATIC ETHER, ACTIVATION ENERGY, ENTROPY, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1140 STEP NO--UR/0079/70/040/003/0597/0603

CIRC ACCESSION NO--AP0128564
UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0128564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 26 G ETP(NET SUB2)CL WITH 12.4 G CLCH SUB2 OME 8 HR AT 60-70DEGREES GAVE AN ORANGE MASS, WHICH TREATED WITH SO SUB2 THEN HCL GAVE 55PERCENT MEOCH SUB2 P(O)ETCL (I), B SUB14 105-7DEGREES, N PRIME20 SUB3 1.4710, D PRIME20 1.2140. I AND MEOH MIXED AT 10DEGREES AND WARMED TO ROOM TEMP, FINALLY IN VACUO GAVE 51PERCENT MEOCH SUB2 P(O) (OME)ET B SUB14 115-16DEGREES, 1.4506, 1.1152. SIMILAR REACTION WITH ET SUB2 NH GAVE MEOCH SUB2 P(O) (NET SUB2)ET 70PERCENT, B SUB16 137-80, 1.4637, 1.0119. I (8 G) TREATED WITH 0.41 ML H SUB2 O IN ET SUB2 O WITH COOLING, THEN 1 HR AT 100-20DEGREES GAVE 55 PERCENT (MEOCH SUB2 P(O)ET) SUB2 O, B SUB1 155-60DEGREES, 1.4680, 1.1762. I AND H SUB2 O IN EXCESS GAVE MEOCH SUB2 P(O) (OH)ET, B SUB3 184-5DEGREES, 1.4558, 1.1639. SIMILARLY WERE PREPD. SHOWN ON MICROFICHE. THE RATE CONST. FOR REACTION OF ETP(NET SUB2)CL WITH MEOCH SUB2 CL AT 20DEGREES WAS DETD. BY CONDUCTOMETRIC STUDY TO BE 5.16 TIMES 10 PRIME NEGATIVE3 L. MOLE PRIME NEAGIVE1 MIN PRIME NEGATIVE1. THE ACTIVATION ENERGY OF THE REACTION WAS 10.8 KCAL-MOLE AND ACTIVATION ENTROPY OF MINUES 32.2 E.U. THE REDUCED RATE OF REACTION IN THIS CASE RELATIVE TO THAT OF ET SUB2 PCL IS ASCRIBED TO LOWERED NUCLEOPHILIC NATURE OF P WHEN ET IS REPLACED BY ET SUB2 N GROUP.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INTRAUTERINE DEVELOPMENT OF GALL BLADDER AND EXTRAHEPATIC BILIARY DUCTS IN CAVIA PORCELLUS L -U-

AUTHOR--KRUTSYAK, V.N.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK ZOOLOGII, 1970, NR 3, PP 26-32

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GUINEA PIG, DIGESTIVE SYSTEM, LIVER, ANATOMY, EMBRYOLOGY, GALLBLADDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0654 STEP NO--UR/0575/70/000/003/0026/0032

CIRC ACCESSION NO--AP0128191

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128191

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EMBRYONIC DEVELOPMENT OF GALL BLADDER AND EXTRAHEPATIC BILIARY DUCTS WAS STUDIED IN 56 EMBRYOS AND 20 NEWLY BORN INDIVIDUALS OF GUINEA PIGS BY THE METHODS OF HISTOLOGICAL AND MACROMICROSCOPIC INVESTIGATION. IT WAS ESTABLISHED THAT GALL BLADDER DEVELOPS FROM THE CAUDAL PART OF LIVER ANLAGE (AN EMBRYO IS 7.1-7.5 MM LONG); MUSCULAR COAT, FROM MESENCHYMA INTERNAL LAYER (AN EMBRYO IS 40 MM LONG); BLADDER DUCT DEVELOPS FROM THE NARROWED PART OF GALL BLADDER ANLAGE (AN EMBRYO IS 9 MM LONG); ANLAGE OF GALL BLADDER GLANDS IN A FORM OF EPITHELIAL MEMBRANE OUTGROWTH INTO UNDERLYING MESENCHYMA OCCURS IN EMBRYOS 40 MM LONG. FACILITY: THE MEDICAL ISNTITUTE, CHERNOVTSY.

UNCLASSIFIED

USSR

UDC 681.3.06:51

MIKHAYLOV, V., VILENSKAYA, L., SAVVAKINA, A., KRUTYANSKIY, A.

"A Small Monitor for the Ural-14 Computer"

Elektronno-vychisl. Tekhn. i Programmir. [Electronic Computer Equipment and Programming -- Collection of Works], No 3, Moscow, Statistika Press, 1970, pp 5-11, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V619).

Translation: A monitor is described for the Ural-14 computer, providing for the running and printer output of one job during simultaneous input of a second job. The monitor organizes its work on the basis of operator requests input from the control panel, requests from the job, consisting of a special type of instructions, interrupt signals from punching devices and error signals.

USSR

UDC 612.84+615.787

KRUZHALOV, N. B., and GUSEL'NIKOVA, K. G., Chair of Physiology of Higher Nervous Activity and Laboratory of Physiology and Evalution of Analysors, Moscow State University imeni M. V. Lomonosov

"The Effect of Certain Cholionlytics and Anticholinesterase of the Electro-olfactogram of the Frog"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 57, No 11, 1971, pp 1,740-1,742

Abstract: The hypothesis that the acetylcholine-cholinesterase system plays a role in olfactory reception was tested by the application of a number of cholinolytics and anticholinesterases to the ofactory epithelium of frogs. Of the three cholinolytics used -- atropine, diplacin, and hexonium -- only the latter had a significant inhibiting effect on the electroolfactogram, which shows the receptor potential of the olfactory cells. It was concluded that cholinolytics are capable of exciting the olfactory receptors, just as ordinary odoriferous substances do. Neither of the anticholinesterases used (eserine and proserine) caused an increase in either the amplitude or the length of the electroolfactogram. From this it may be concluded that anticholinesterase does not participate in the processes which precede the generation of the

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USSR

KRUSHALOV, N. B., and GUZEL'NIKOVA, K. G., Fiziologicheskiy Zhurnal SSSR imeni I. M. sechenov, Vol 57, No 11, 1971, pp 1,740-1,742

electroolfactogram and, consequently, that acetylcholine is not a mediator in the process of olfactory reception.

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USSR

UDC: 621.378.325

KRUZHALOV, S. V. and KOZHEVNIKOV, N. M.

"Analyzing the Polarization Characteristics of Traveling-Wave Laser Radiation"

Leningrad, Zhurnal tekhnicheskoy fiziki, vol 42, No 7, 1972, pp 1452-1458

Abstract: A theoretical analysis is made of the characteristics of traveling-wave lasers, including a linear computation of the anisotropic resonator. The effect of nonlinear interactions of polarized waves on the oscillation mode of the lasers is determined. For the computations, the Jones method involving a special matrix is used. An equation is derived for the characteristic vectors of the resonator at some arbitrary point, and from it is found an expression for the eigenvalues characterizing the change in absolute value and phase of the characteristic vector for a single excursion of the resonator. Plots of the characteristics for these characteristic polarization vectors are shown for three- and four-mirror resonator systems. The interaction of polarized waves in the traveling-wave laser is theoretically investigated. The authors thank N. A. Yesepkina, V. Yu. Petrun'kin, and L. N. Fakhomov for their comments on the paper. They are associated with the M. I. Kalinin Polytechnical Institute of Leningrad.

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Acc. Nr. AP0105554 Abstracting Service: CHEMICAL ABST. Ref. Code 4R0499

126618n Magnetodiodes made from nickel-doped silicon. Karakushan, E. I.; Kovarskii, V. Ya.; Komarovskikh, K. F.; Kruzhanov, Yu. V.; Stafeev, V. I. (USSR). Fiz. Tekh. Poluprov. 1970, 4(3), 628-30 (Russ). S-diodes were prepd. from Ni- and P-doped Si from the melt. The semi-insulating *n*-type Si platelets had a resistivity of 2 kilohm-cm, a thickness of 650-660 μ, and a diam. of the *p-n* junction of 150 μ (it was formed by the diffusion of evapd. Al); the 2nd contact was alloyed Au + Sb. The sensitivity to a magnetic field was characterized by the dynamic current (I) magnetosensitivity, $\gamma_I = \partial I/\partial H|_{U_s - R_L = U}$, where U_s is the source voltage, R_L the load resistance, and H the magnetic field strength. The H dependence of γ_I had a sharp max., which increased with increasing U_s and decreasing R_L. The max. γ_I at room temp., with U_s = 13 V and R_L = 80 ohms, was 60 mA/kOe in a field of 1.3 kOe. The switching coeff. (ratio of the current without field to that in a field) was 70-250. The voltage magnetosensitivity, γ_U, increased with increasing I and increasing H. In a field of 5 kOe at I = 10 mA, γ_U = 6 V/kOe.

Petur Vajda

REEL/FRAME
19880569

UDC 621.311.2:620.9

USSR

ANAN'YEV, Ye. P., KRUZHILIN, G. N.

"Classification of Nuclear Power Plant Modules"

Moscow, Atomnaya Energiya, Vol 31, No 5, Nov 71, pp 443-447

Abstract: The paper deals with the reliability of elements in large nuclear power plants -- the principal factor which affects both the economic performance of the plant and the economy of power delivery. An atomic-electric power plant is considered in which the reactors are incorporated into a system with turbogenerators. An analysis is made of problems of strength, standby provisions for the systems for automatic control of the reactor, as well as questions relating to the circulation loops and the turbogenerators. The turbogenerators are evaluated as a system which is more complex than the reactor in the dynamic sense. The authors point out that selection of unit power and turbine speed (3,000 or 1,500 rpm) is of interest in itself as an independent problem. It is shown that two turbines per reactor should be used in high-capacity nuclear-electric power plants. One figure, bibliography of nine titles.
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UDC 621.311.2:621.039

USSR

ANAN'YEV, YE. P., and KRUZHILIN, G. N.

"Features of Atomic Power Stations in Power Engineering"

Moscow, Atomnaya Energiya, Vol 28, No 4, Apr 70, pp 291-294

Abstract: The degree of utilization of nuclear fuel in thermal reactors is rather limited, so that atomic power stations with thermal reactors will be of transitional significance and the main role in nuclear power engineering will most likely go to stations with fast reactors. The fuel elements are most important in selecting the type of thermal reactor, particularly fuel elements of uranium dioxide in a cylindrical jacket of zirconium 10 mm in diameter, designed for water-cooled channels. The program for the construction of atomic power stations with thermal reactors in the USSR is based on vessel and channel water-cooled reactors.

The promise of atomic power stations is determined by their

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USSR

ANAN'YEV, YE. P. and KRUZHILIN, G. N., Atomnaya Energiya, Vol 28, No 4, Apr 70, pp 291-294

relatively high economy. Another feature is the fact that the operation of the nuclear reactor and block as a whole is amenable to automatic control under conditions of normal reliability. Radioactivity is the most important specific feature of atomic power stations. It is now generally recognized that atomic power stations have sanitary advantages over ordinary thermal electric power stations. Another advantage of atomic power stations is the high calloricity of the nuclear fuel. Stations can be constructed in regions of electric power consumption without the need arising for long-distance transmission. The threatened shortage of energy resources in the European part of the USSR will thus be covered by the construction of atomic power stations. Autonomous low-power stations will undoubtedly be built in remote regions which do not have their own energy resources or cheap transportation links with organic fuel supply bases. An example is the Bilibino Atomic Power Station, under construction in the Far Northeast of the USSR. The question of operating regimes for atomic power stations arises. The most favorable regime is one with constant power. At the same time variable-power blocks can be used in the so-called peak portion of the load schedule.

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Magnetohydrodynamics

USSR

UDC 533.951.8

KRUZHILIN, N. A., and YAKUBOV, I. T.

"Conditions for the Appearance of Ionization Instability in a Nonstationary Plasma without Two-Temperature Approximation"

Moscow, Teplofizika Vysokikh Temperatur, Vol 8, No 4, 1970, pp 712-715

Abstract: The plasma under discussion in this article is uniform, in crossed electric and magnetic fields. The conditions under which there is no "two-temperature" approximation -- that is, when the electron concentration is not connected by the Saha relation with the electron temperature -- are considered. The authors begin their calculations by writing the equations of ionization kinetics under these conditions and obtain an expression for a plasma in crossed electric and magnetic fields in which the average Hall current is zero. They also find relationships between the time of development of heterogeneities and the background relaxation time. The authors note that with no magnetic field perpendicular to the electric field, an ionization instability peculiar to a two-temperature plasma may arise. They express their gratitude to V. S. Vorob'-yev, A. M. Dykhne, and V. A. Kas'yanov for their valuable comments.

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1/2 043 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SECOND HARMONICS OF INJECTION LASER RADIATION -U-

AUTHOR-(02)-KRUZHILIN, YU.I., KOLOSKOV, YU.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12,1, 334-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SECOND HARMONIC, LASER RADIATION, GALLIUM ARSENIDE LASER, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1014 STEP NO--UR/0368/70/012/002/0334/0335

CIRC ACCESSION NO--AP0107528

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 043

CIRC ACCESSION NO--AP0107528

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. DATA ARE REPORTED ON THE EXCITATION OF THE 2ND HARMONICS OF AN INJECTION LASER OF GAAS IN KH SUB2 PO SUB4 CRYSTALS. THE LASER WAS OPERATED IN THE PULSE REGIME OF 5 KHZ AND 10 SEC DURATION WITH OUTPUT POWER 2-3 W. THE 2ND HARMONICS LINE WITH WAVELENGTH 4560 PLUS OR MINUS 25 ANGSTROM AND WIDTH 6 PLUS OR MINUS 2 ANGSTROM WAS OBTAINED FROM THE LASER LINE AT 9100 PLUS OR MINUS 40 ANGSTROM AND WIDTH 25 PLUS OR MINUS 10 ANGSTROM. THE 2ND HARMONICS BLUE RADIATION WAS POWERFUL ENOUGH FOR VISUAL OBSERVATION IN THE DAYLIGHT. THE 2ND HARMONICS POWER OUTPUT IS APPROX. A SQUARE FUNCTION OF THE LASER POWER. AT ROOM TEMP. THE LASING AT 9100 ANGSTROM IS ACCOMPANIED BY RADIATION AT 4550 PLUS OR MINUS 35 ANGSTROM WITH THE LINEWIDTH 8 PLUS OR MINUS 3 ANGSTROM.

UNCLASSIFIED

UDC 615.28:547.7517.012

USSR

SALDABOL, N. O., ALEKSEYEVA, L. N., BRIZGA, B. A., KRUMETA, L. Y., and GILLER, S. A., Institute of Organic Synthesis, Riga, Academy of Sciences Latvian SSR

"Synthesis and Antimicrobial Action of Furyl-Substituted Indolizine, Imidazo (1,2-a)pyrimidine, and Imidazo(2,1-b)thiazole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 20-22

Abstract: Continuing work on the synthesis and study of antimicrobial properties of furyl-substituted heterocyclic condensed systems with apcial nitrogen atoms, the authors obtained (5-R-furyl-2)substituted indolizine (VIa, VId), imidazo(1,2-a)pyridine (VIIa, VIIb, and VIId), and imidazo92,1-b)thiazole (VIIIa-VIIIc and IXa, IXc) (R = H, Br, and NO_2) and described their antimicrobial action.

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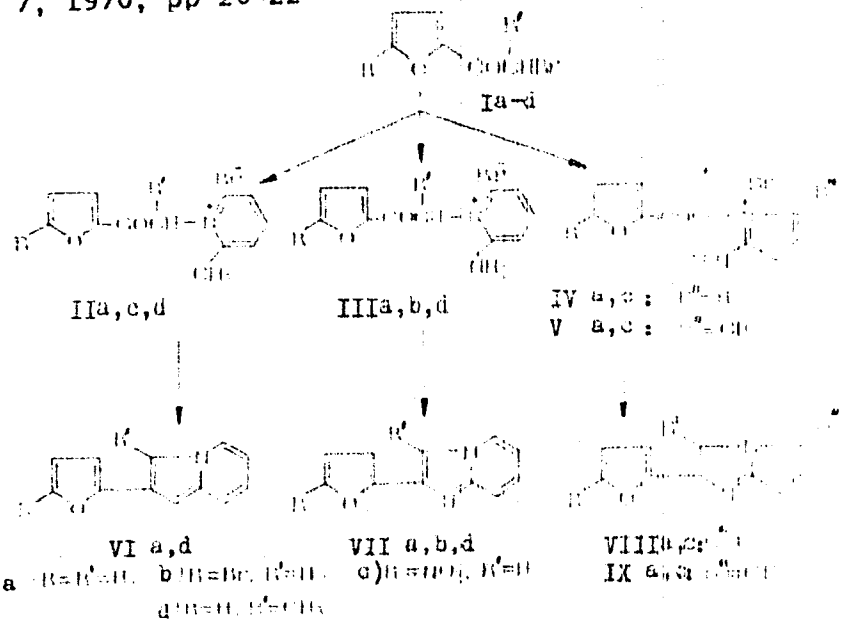
USSR

SALDABOL, N. O., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 20-22



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USSR

SALDABOL, N. O., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 20-22

The minimum concentration of furylazabicycles inhibiting microorganismic growth is 100 mcg/ml, while for phenyl analogs it rises sharply. For example, for 6-phenylimidazo(2,1-b)thiazole and its n-nitroderivative the minimum concentration inhibiting growth of Staphylococcus aureus, Salmonella tyohi, and Escherichia coli is 7800 mcg/ml. Thus, replacement of the phenyl with the furyl group leads to an abrupt intensification of antimicrobial action, which is intensified still further in the case of the nitrofurylazabicycles (VIIc, VIIIC and IXc). The strongest bacteriostatic action is shown by nitrofurylimidazopyridine (VIIc), buts its aromatic analog 2-p-nitrophenylimidazo[1,2-a]pyridine is only slightly active.

3/3

KRYAAR, Kh. A.

JPRS 55886

4 May 1972

UDC 536.21:223.621.762

THERMOPHYSICAL PROPERTIES OF POWDERED METAL COMPOSITIONS OF THE SYSTEM Al_2O_3-Mo

[Article by V.A. Osinova, Kh. A. Kryaar; Moscow, Atomnaya Energiya, Russian, No 2, February 1972, signed to press 8 July 1971, p 162]

This paper is a continuation of the investigations begun in reference [1], which permitted us to determine the thermophysical properties of the powdered metal compositions 80% Al_2O_3+20% Mo and 60% Al_2O_3+40% Mo (wt %) at temperatures of 500-1300° K. Aluminum oxide served as the original powder of the ceramic component. The chemical composition of the molybdenum powder is given below (wt %):

Mo	W	Ta	Nb	Ti	Zr
99.91	0.046	0.03	0.01	0.03	0.03

Dispersion analysis showed that 90% of the original powder consists of particles 0.001-0.003 mm in size, and 10% -- 0.005-0.01 mm in size. The mean density of the 80% Al_2O_3+20% Mo sample is 4450 kg/m^3, and in the 60% Al_2O_3+40% Mo it is equal to 5120 kg/m^3. The overall porosity of the powdered metal compositions lay in the range of 1-4%. The test bars were produced by baking; their diameter was 40 mm; their height was about 70 mm. The samples were taken from individual disks, 5-10 mm thick.

[I - USSR - X]

Acc. Nr. AP0049302 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code K GP0226

103089b Basic trends in the development of cermet friction materials in the USSR. Kryachek, V. M. (Inst. Probl. Materialoved., Kiev, USSR). *Poroshk. Met.* 1970, 10(1), 104-7 (Russ). The basic trends are presented concerning the production and investigation of cermet friction materials in the USSR, namely: (1) application of the alloys with higher heat resistance and increased mech. characteristics than the well-known materials as the metallic base of cermet friction materials; (2) introduction of various fillers (hard lubricants, friction additives) into existant materials in order to increase the wear resistance and the friction properties of these materials. S. A. Mersol

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REEL/FRAME
19801119

18

USSR

UDC 531.43

KOVAL'CHENKO, M. S., TKACHENKO, Yu. G., PILYANKEVICH, A. N., and KRYACHENKO, V. I., Institute of Problems of Material Science, Academy of Sciences UkrSSR

"Temperature Dependence of Wear and the Character of Titanium and Niobium Carbide Destruction"

Kiyev, Poroshkovaya Metallurgiya, No 6, (102), Jun 71, pp 74-78

Abstract: The temperature dependence of wear and the character of destruction and plastic deformation of surface layess of titanium and niobium carbides at temperatures of 20-1600°C were investigated on specimens prepared by the powder pressing method. The results, presented as curves of the linear wear intensity vs. temperature, demonstrate a linear wear increase with increasing temperature. The maximum increase of wear intensity takes place in the temperature interval of 500-1200°C, after which the increase slows down. The destruction character of niobium carbide friction surfaces, investigated electron-microscopically within the temperature range of 20-1600°C, is shown. Two illustr., seven biblio. refs.

1/1

Acc. Nr. AP0033947 | Abstracting Service: CHEMICAL ABST. 4-70 | Ref. Code UR0078

K

67326r Effect of fluoride ion on molybdic acid polymerization. Kryachko, E. N.; Karyakin, Yu. V. (Kafedra Neorg. Khim., Voronezh. Tekhnol. Inst., Voronezh, USSR). *Zh. Neorg. Khim.* 1970, 15(1), 26-8 (Russ). Effect of F^- on molybdate polymn. was studied spectrophotometrically. Polymn. decreased with increasing F-Mo ratio and at F-Mo ratio 10:1, it ceased. The presence of F^- shifts initiation and termination of molybdate polymn. to a region of higher concns. HMJR

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REEL/FRAME 19710574

7

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEPENDENCE OF CURRENT BRIGHTNESS CHARACTERISTICS OF DIFFUSED P-N JUNCTIONS IN SILICON CARBIDE ON THE EXCITATION LEVEL AND TEMPERATURE OF

AUTHOR--KRYACHKO, I.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 421-3

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PN JUNCTION, SILICON CARBIDE, ELECTROLUMINESCENCE, LUMINESCENCE QUENCHING, TEMPERATURE DEPENDENCE, NONLINEAR EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0103 STEP NO--UR/0449/70/004/002/0421/0423

CIRC ACCESSION NO--AP0105189

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105189

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTROLUMINESCENCE WAS STUDIED FOR THE DIFFUSION "BORON," P-N JUNCTIONS IN SIC PREPD. BY A METHOD DESCRIBED EARLIER (G. VIOLIN AND KHOLUYANOV, 1954), AND ITS BRIGHTNESS WAS STUDIED AS A FUNCTION OF THE INJECTION CURRENT OBTAINED AT SEVERAL TEMPS. THE CURRENT BRIGHTNESS CHARACTERISTICS CHANGE SMOOTHLY FROM ESSENTIALLY SUPERLINEAR TO SUBLINEAR. THE CURVES ARE SIMILAR AT ALL TEMPS. EXCEPT THAT THEY SHIFT TOWARD HIGHER VALUES OF THE CURRENT WITH AN INCREASE IN TEMP. THERE IS A STRONG TEMP. QUENCHING OF THE BRIGHTNESS AT 110-350DEGREES. THE ATTENUATING EFFECT OF TEMP. CAN BE COMPENSATED WITH AN INCREASE IN THE CURRENT. THE SLOPE OF THE CURVES FOR LOG I VS. 1-T (WHERE I IS THE CURRENT) CAN BE USED TO DET. THE DEPTH OF THE LOCAL LEVEL FOR THE EMISSION CENTER. A VALUE OF DELTA EPSILON EQUALS 0.5 EV WAS OBTAINED, WHICH IS CLOSE TO THE ACTIVATION ENERGY FOR THE TEMP. QUENCHING. FACILITY: POLTAVA, VYSSH. VOENNOE KOMANDNOE UCHILISHCHE SVYAZI, POLTAVA, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.69:621.319.4

ASEYEV, Yu. N., KRYACHKO, V. V., LOBOV, I. Ye., SYNOROV, V. F., KOSOY, A. Ya.

"A Thin-Film Capacitor"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329582, Division G, filed 17 Oct 69, published 9 Feb 72, p 205

Translation: This Author's Certificate introduces a thin-film capacitor in the form of metal plates (e. g. comb plates) applied to a dielectric substrate and covered with a layer of dielectric material. As a distinguishing feature of the patent, the capacitance is increased without increasing the area of the plates by applying a layer of metal to the dielectric.

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USSR

UDC 669.018.8:669.183.046.51:669.784

OKENKO, A. P., PIROGOV, N. A., SABININA, T. B., KRYAKOVSKIY, YU. V., and TYURIN, YE. I., Moscow Institute of Steel and Alloys

"The Effect of Boron on the Separation Process of Carbides in Kh23N18 Steel"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1973, pp 142-145

Abstract: A study was made of Kh23N18 steel without boron addition and with small boron additions (0.0012%). The VEMV-100A electron microscope was used. Boron was shown to inhibit the separation process of carbides. On cooling, after preliminary heating to 1200°C, the $Me_{23}C_6$ carbide in the steel with boron began to separate at a lower temperature (~1050°C) than in the steel without boron (~1100°C). Boron also affected the character of the distribution of carbide along the boundaries and in the body of the austenite grains. The indicated phenomena explain the improved hot plasticity of Kh23N18 steel in the presence of small addition of boron. Five figures, four bibliographic references.

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USSR

UDC: 621.376.2

KRYANEV, S. K.

"Digital SSB Signal Shaping"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection of works), Kiev, "Tekhnika", 1970, pp 63-68 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D452)

Translation: This paper deals with shaping of a single-sideband signal with the phase-filter method, using the structural circuit of a discrete filter. It is shown that the delay elements may be based on discrete devices in the case of a binary input signal, which appreciably reduces equipment cost. Consideration is given to the distortions which arise from using a circuit with a finite number of elements. Graphs are given which may be used to get a rough estimate of the complexity of the device for a predetermined error. Two illustrations, bibliography of five titles. Resumé.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--VERKHOYAN'E ROCK CRYSTAL -U-

AUTHOR-(02)-KRYATOV, B.M., PASKEVICH, G.P.

COUNTRY OF INFO--USSR

SOURCE--PRIRODA (MOSCOW) 1970, (2), 104-5

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS

TOPIC TAGS--QUARTZ CRYSTAL, PIEZOELECTRIC PROPERTY, GEOLOGIC FORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0357 STEP NO--UR/0026/70/000/002/0104/0105

CIRC ACCESSION NO--AP0124114

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE CENTRAL REGIONS OF THE TITLE MOUNTAINS (SIBERIA), LARGE QUARTZ CRYSTALS ("ROCK CRYSTALS") ARE FOUND, IMPORTANT IN ELECTRONIC APPLICATIONS, OWING TO THEER PIEZOELEC. PROPERTIES. THE CRYSTALS WERE FORMED DURING MILLIONS OF YEARS, STARTING AT THE BOTTOM OF AN ANCIENT SEA IN THIS AREA, WHICH HAS RISEN TO BECOME THE MOUNTAINS OF TODAY. QUARTZ VEINS, OFTEN CONTG. RARE AND PRECIOUS METALS, DO NOT INCLUDE ROCK CRYSTALS, BECAUSE THE VEINS WERE FORMED AT RELATIVELY HIGH TEMPS., WHEREAS THE FORMATION OF ROCK CRYSTALS REQUIRES TEMPS. SMALLER THAN 100-200DEGREES.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--HYFIENIC ASSESSMENT OF SODIUM PARACHLORBENZOL SULPHATE AND SODIUM SALT OF CHLORAL AS A CONTAMINATING FACTOR OF WATER BODIES -U-

AUTHOR--KRYATOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 3, PP 14-19

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WATER POLLUTION, HYGIENE, CHLORINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, SULFATE, SODIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0457 STEP NO--UR/0240/70/000/003/0014/0019

CIRC ACCESSION NO--AP0100935

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100935

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR STUDIED THE EFFECT OF SODIUM PARACHLORBENZOLSULPHATE (PCBS) AND THAT OF SODIUM SALT OF CHLORAL ON THE ORGANOLEPTIC PROPERTIES OF WATER, THE SANITARY REGIMEN OF WATER BODIES AND WARM BLOODIED ANIMALS UNDER CONDITIONS OF ACUTE AND CHRONIC TESTS. THE THRESHOLD CONCENTRATION OF PCBS ACCORDING TO ITS NOXIOUS ACTION ON THE ORGANOLEPTIC PROPERTIES AMOUNTED TO 2 MG-L AND THAT OF CHLORAL TO 16 MG-L. BOTH SUBSTANCES AT A CONCENTRATION WITHIN A LEVEL OF 50 MG-L HAD NO NOXIOUS EFFECT ON THE SANITARY REGIMEN OF WATER BODIES. IN A CHRONIC SANITARY TOXICOLOGIC TEST CARRIED OUT ON ANIMALS PCBS IN A DOSE OF 0.1 MG-KG AND CHLORAL IN THAT OF 0.01 MG-KG PROVED TO BE INEFFECTIVE. THE MAXIMUM PERMISSIBLE CONCENTRATION OF PCBS IS RECOMMENDED TO BE SET AT A LEVE OF 2 MG-L AND THAT OF CHLORAL AT A LEVEL OF 012 MG-L ACCORDING TO ITS SANITARY TOXICOLOGIC EFFECT.

UNCLASSIFIED

USSR UDC 621.396.6-181.5

BAKANOV, G. F., KRYCIN, V. M., SMIRNOV, V. I.

"An Installation for Studying Electronic Lithography"

Izv. Leningr. elektrotekhn. in-ta (News of the Leningrad Electrical Engineering Institute), 1971, vyp. 98, pp 20-23 (from Ref. Zhurnal Tekhnika, No 7, Jul 71, Abstract No 7V296)

Translation: The described device is based on the M-9 electron microscope: the changes made are due to the necessity for substituting a short-focus electron gun for the long-focus unit in the instrument. In order to study the electronic lithographic process, a beam-deflecting oscillator is developed to produce various images: rows of dots, rows of parallel lines, rectangles. A method of checking spot diameter is described. Three illustrations, bibliography of one title. M. B.

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USSR

NEPOKLONOV, A. A., KRYKIN, A. S., and CHERNYSH, N. I.

"All-Union Conference on the Control of Bloodsucking Flies, Ticks, and Gadflies of Farm Animals"

Moscow, Veterinariya, No 10, 1971, pp 120-122

Abstract: The title conference was held in June 1971 in the city of Novomoskovsk (Tulskaya Oblast). The 70 papers and reports discussed methods of protecting farm animals against bloodsucking flies and ticks (R. M. Alekhin, USSR Ministry of Agriculture); summary of research conducted from 1966 to 1970 on the control of insect and tick parasites (Yu. I. Boykov, All-Union Scientific Research Institute of Veterinary Sanitation); main directions of efforts to control gadflies of cattle and reindeer (A. A. Nepoklonov, All-Union Scientific Research Institute of Veterinary Sanitation); principles and methods used in toxicological evaluation of pesticides (G. A. Talabov, ARIVS); outlook for the development of biological methods to control bloodsucking mosquitoes (P. A. Lavrent'yev, Kazan' Veterinary Institute); ecology of reindeer gadflies and control measures (P. I. Bryushinin, Izhmo-Pechora Veterinary Research Station); use of thermostable exotoxin and entobacterin against insects (A. P.

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USSR

NEPOKLONOV, A. A., et al., Veterinariya, No 10, 1971, pp 120-122

Tonkonozhenko, ARIVS); toxic properties of new insecticides (A. S. Selivanova, Kazan' Veterinary Institute); physicochemical methods of analyzing pesticide residues in biological substrates (G. A. Talanov, ARIVS); and histological, histochemical, and electron-microscope studies of reindeer organs and tissues after exposure to baitex (P. M. Makhno).

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USSR UDC 661.143(088.8)

KRYKOV, YE. I., BORISOV, A. K., and SHUL'GIN, B. V.

"Luminescent Compound on the Basis of Elements of the III Group"

Ural'sk. politekhn. in-t (Ural Polytechnical Institute)

USSR Author's Certificate No 323429, Filed 19 May 70, Published 22 Feb 72 (from Referativnyy Zhurnal -- Khimiya Svodnyy Tom, No 23(II), 1972, Abstract No 23L137P by N. SH.)

Translation: A luminescence-producing compound which includes elements of the III group is patented. For example, the Y compound, with the activator Eu. In order to increase the luminescence brightness, oxides or chlorides of titanium and niobium are added to it. Oxides of Y and Eu, and oxides or chlorides of Ti and Nb are added in a stechiometric ratio which corresponds to the artificial euxenite $Y_{1-x}Eu_xTiNbO_6$ where x = 0.01-0.65. For example a mixture containing (in g) Nb_2O_5 3.5314, $2TiO_2$ 2.1228, Y_2O_3 1.616, and Eu_2O_3 1.384 are ground in alcohol for 40 min, dried, ignited at 1050°C for 2 hr, ground again in ethalon for 30 min and pressed into tablets. Tablets are roasted at 1200°C for 10 hr in air, cooled in the turned off oven, and subjected to the final roasting at 1250°C for 1 hr. The obtained product corresponds to $Y_{0.5}Eu_{0.5}TiNbO_6$ with its

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KRYKOV, YE. I., et al., Author's Certificate No 323429,

stechiometry and has the euxenite structure. The product is nonhygroscopic, can not be dissolved in HCl, H_2SO_4, HNO_3, alkali, thermostable up to 1250°C, and produces bright-red luminescence.

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USSR

VOLKOV, N. I., ZATSIORSKIY, V. M., KRYLATOVKI, Yu. G., MAKSIMOV, N. M., NEVERKOVICH, S. D., SARSANIYA, S. K., CHEREMISINOV, V. N., and SHIRKOVETS, Ye. A., State Order of Lenin Central Institute of Physical Culture

"Physiological Characteristics of Repeated Exercise Done at Different Heart Rates"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 5, 1971, pp 23-28

Abstract: Lung ventilation, oxygen consumption, and release of "excess" CO_2 were measured in 3 skilled cyclists after repeated exertions on a bicycle ergometer with different lengths of work and rest periods. Each subject performed 5 variations of the experiment at 3 heart rates - 150, 165, and 180 beats/min. The periods of exertion were 1.5, 3, 7.5, 15, and 30 min. The nature of the physiological reactions to the repeated exercise varied considerably with the length of the work and rest periods. Oxygen consumption was highest when the repeated exercise was done at a heart rate of 180 beats/min with work periods of up to 3 min. Lung function was most efficient when the heart rate was over 150 beats/min and the exercise period was less than 7.5 min. Repeated exercise at 165 beats/min for about 7.5 min had the greatest effect on tissue utilization of oxygen.
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USSR

UDC 539.214;539.374

KRYLEV, V. F.

"On the Question of Pressing of Shells of Rotation"

Tr. Vses. n.-i. i konstrukt. in-t khim. mashinostr. (Works of the All-Union Scientific Research and Design Institute of Chemical Machine Building), 1972, No. 56, pp 93-101 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V481)

Translation: A mathematical description is given of the process of the plastic deformation of shells of rotation under pressing between rigid surfaces. The first problem of the flow of the plastic layer is solved in the formulation of A. A. Il'yushin. The distribution of the specific pressure of the layer on the working organs of the press, the distribution of the rate of the particles and the total force of pressing applied to the working organs are determined for each point of time in the pressing process. The pressing of shells having the form of a spherical segment, a parabola of rotation and a circular conical shell are discussed in detail. The paper contains a closed relationship making it possible to determine loads on working parts of the press in strength and rigidity calculations and also to determine the deformations of the pressed shell. Author's abstract.

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USSR UDC:533.6

BAZARNOVA, N. M., KRYLOV, A. A., STARIKOV, B. B.

"Experimental Study of Flow Around a Sphere by a Stream of Rarefied Gas"

Aerodinamika Razrezh. Gazov [Aerodynamics of Rarefied Gases -- Collection of Works], No 6, Leningrad University Press, 1973, pp 105-113 (Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 9, 1973, Abstract No 9.34.10)

Translation: Results are presented from experimental studies of the distribution of pressure on the surface of an insulated sphere in a stream of rarefied gas. Experiments were performed at M=3.6-5.8, the change in rarefaction of the stream with flow around the sphere corresponded to a transient flow mode (Re_∞=10-130). Results are produced as to the pressure on the surface of the sphere practically for the entire transient flow mode. The pressure on the upwind side of the sphere for all modes does not change as the rarefaction changes and is well described by the theory of Newton. The rarefaction of the stream has no influence on the nature of distribution in the bottom portion of the sphere; the measured bottom pressures, to 10% of the static pressure in the stream. 5 Figures; 11 Biblio. Refs. Resume

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--DESIGN AND OPERATION OF PISTON COMBINATION ENGINES -U-

AUTHOR-(05)-ORLIN, A.S., ALEKSEYEV, V.P., KOSTYGOV, N.I., KRUGLOV, M.G., KRYLOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--DESIGN AND OPERATION OF PISTON COMBINATION ENGINES. SEC. ED., REV. AND EXP. (USTROYSTVO I RABOTA PROSHNEVYKH I KOMBINIROVANNYKH DVIGATELEY)

DATE PUBLISHED--------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--DIESEL ENGINE, GASOLINE ENGINE, INTERNAL COMBUSTION ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1715 STEP NO--UR/0000/70/000/000/0001/0333

CIRC ACCESSION NO--AM0130577
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 019

CIRC ACCESSION NO--AM0130577

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION 5. CHAPTER I. OPERATIONAL PROCESSES IN PISTON AND COMBINATION ENGINES 11. II. PARAMETERS CHARACTERIZING PISTON ENGINES 39. III. THE WORKING PRINCIPEL OF THE ENGINES 57. IV. GASOLINE ENGINES 145. V. DIESEL ENGINES 204. VI. GAS ENGINES 324. VII. SPECIAL DESIGNS OF ENGINES 358. THIS IS A TEXT BOOK WRITTEN FOR THE COURSE "INTERNAL COMBUSTION ENGINES" OF THE MOSCOW HIGHER TECHNICAL SCHOOL AND CONTAINS A DESCRIPTION OF THE WORKING PRINCIPLE AND OPERATION OF PISTON INTERNAL COMBUSTION ENGINES OF ALL TYPES AND ALSO THE SPECIAL FEATURES OF THE OPERATION AND DESIGN OF COMBINATION AND ROTOR PISTON ENGINES. THIS IS THE FIRST VOLUME OF A FOUR VOLUME EDITION ON "INTERNAL COMBUSTION ENGINES".

UNCLASSIFIED

UDC 669.2.087(047)

USSR

KRYLOV, A. P.

"International Symposium on Special Electrometallurgy"

Moscow, Tsvetnyye Metally, No 1, Jan 73, pp 89-90

Abstract: An international symposium on special electrometallurgy, organized by the Institute of Electric Welding imeni Ye. O. Paton, was held in Kiev on 6-8 July 1972 and was devoted to the problems of future theoretical study, improvement, and introduction of the progressive technological processes of electroslag (ESR), electronbeam (EBR), and plasma-arc (PAR) remelting. The work of V. M. MOZHAYEV, A. M. NIKIFOROV, L. N. SERGEYEV, and V. I. SOKOLOV was devoted to studying the properties of chromium bronze produced by ESR in which it found that ESR promotes a more uniform chromium distribution in the ingot volume and refinement of the alloy from harmful metallic and nonmetallic inclusions. The work of B. I. MEDOVAR, V. L. ARTAMONOV, V. M. MARTYN, and N. N. KALINYUK was devoted to studying the questions of hydrogen behavior in ESR since some similarity can be observed in the interaction of slag and metal during ESR and in the secondary remelting of aluminum and aluminum alloy scrap under a thick layer of flux. The report of G. A. PAVLIYCHUK, V. M. MAYORENKO, and L. M. STUPAK was devoted to the electroslag melting of titanium ingots, in which they proved that the vacuum-arc remelting of titanium sponge into ingots

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KRYLOV, A. P., Tsvetnyye Metally, No 1, Jan 73, pp 89-90

should be replaced by the more productive ESR. K. K. PROKHORENKO, V. V. PRIYMACHEK, V. YA. KONYUKH, YU. V. LATASH, and D. A. DUDKO reported on the investigation and development of torch-slag processes in which melting of the metal in a slag bath is done with a submerged torch with a high thermal efficiency and preservation of all the merits of ESR. The torch-slag method can be controlled and carried out in a reducing, neutral, or oxidizing mode. The first industrial tests of this process were carried out at the Artemovsk Nonferrous Metals Treatment Plant imeni Kviring in the remelting of brass chip with fully reliable results.

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Aluminum and Its Alloys

USSR UDC 669.715.004.82

BAZILEVSKIY, V. M., KRYLOV, A. P., and LEYBOV, YU. M.

"Developing New Secondary Aluminum Alloys and Changing the Composition of Secondary Aluminum Alloys Already in Use"

Moscow, Tsvetnyye Metally, No 7, Jul 71, pp 51-53

Abstract: Principal trends in improving the properties of alloys prepared from scrap metal and waste products are discussed. They include the refinement of the chemical composition of existing secondary alloys, application of heat treatment, and additional alloying with specific admixtures and modification. On the basis of works conducted by the Giprotsvetmetobrabotka State Scientific Research and Planning Institute of Alloys and Nonferrous Metal Processing, new secondary aluminum foundry cast alloys with higher mechanical properties than those of existing alloys have been developed. Their content of admixtures is not lower than the admissible content of secondary alloys according to the All-Union State Standard. Compositions and properties of some improved secondary aluminum alloys or their new compositions are presented. Two tables, thirteen biblio. refs.

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AA0038801 Krylov, B.A. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

238380 HEAT TREATMENT OF CONCRETE AND REINFORCED CONCRETE ARTICLES is carried out by means of a.c. of main frequency during the vibrational formation of the articles. The temperature is rapidly increased to 90-100°C (instead of the conventional rate of 20°C/hr.), whereby the duration of the articles, the moulds are removed without delay, and the articles are further heated at the same temperature until the desired strength is reached. As electrodes, insulated parts of the forming machines or reinforcement elements are used. Compared with the known methods, this process is shortened by 2-4 hrs. The density of the articles is increased, because the vibrational formation is carried out at elevated temperatures. There is no temperature gradients, so that internal stresses do not develop. The removal of the mould elements is facilitated because of the formation of a vapour layer at the contact surfaces. 26.10.67. as 1194251/ 29-33. B.A.KRYLOV et alia. Institute of Concrete and Reinforced Concrete. (10.7.69.) Bul.9/20.2.69. Class 80a. Int.Cl. B28c.

19740001

AA0038801

AUTHORS: Krylov, B. A.; Li, A. I.; Malinina, L. A.; Mironov, S. A.; Rudenko, I. F.; Tolmachev, A. A.; and Shchurov, Yu. I.

Nauchno - Issledovatel'skiy Institut Betona i Zhelezobetona

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19740002

Acc. Nr. AP0034206 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code TAR0078

74247u Compounds of uranyl oxalate with hydrazine. Volkov, G. N.; Krylov, E. I.; Sharov, V. A.; Khakhaiov, [illegible] A. (Ural. Politekh. Inst. im. Kirova, Sverdlovsk, USSR). *Neorg. Khim.* 1970, 15(1), 41-2 (Russ). $UO_2C_2O_4 \cdot N_2H_4 \cdot H_2O$ (I) formed as bright yellow ppt. when a suspension of 2 g $UO_2C_2O_4$ in 200 ml EtOH was mixed at room temp. with 0.4 ml 92% N_2H_4. Yellow-brown cryst. $UO_2C_2O_4 \cdot 2N_2H_4 \cdot H_2O$ (II) was prepd. analogously at 50-60° by using 16 ml 92% N_2H_4. I and II decompd. 1st by losing H_2O, then, at 200-70°, by losing N_2H_4, and, finally, at 335-55°, by oxidn. of $C_2O_4^{2-}$. U_3O_8 is the final product of oxidn. of I or II. HMJR

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Acc. Nr. AP0034205 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code 2AR 0078

74229q Synthesis and properties of nickel oxalate monohydrazinate. Erlov, E. I.; Nikonenko, E. A.; Sharov, V. A.; Ovchinnikov, Yu. M. (Ural. Politekh. Inst. im. Kirova, Sverdlovsk, USSR). *Zh. Neorg. Khim.* 1970, 15(1), 38–40 (Russ). A mixt. of 1 g powd. $NiC_2O_4.2H_2O$, 8.8 ml H_2O, and 0.2 ml 92% N_2H_4 was stirred for 1 hr and then left standing at room temp. for 5 hr. The bright-blue ppt. of $NiC_2O_4.N_2H_4.2H_2O$ (I) was washed with alc. and Et_2O; at 20°, d. of I is 2.21 g/cm³. The magnetic susceptibility of I, detd. at 87–209°K, agrees with the Curie-Weiss law, with $\theta = -45°K$. I is assumed to have an octahedral structure ($\mu_{eff.} = 3.37\ \mu B$). HMJR

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USSR UDC 669.168:621.746

SHARANOV, M. A., SILUKOV, G. A., KOROLEV, A. A., KRYLOV, I. A. and VESELOVSKIY, A. Ya. (All-Union Scientific Research Institute of Heat Engineering in Metallurgy /VNIIMT/; Serov Plant of Ferroalloys)

"Study of the Granulation Process of Silicochrome"

Moscow, Stal', No 4, Apr 72, pp 321-323

Abstract: Described is a joint study by the All-Union Scientific Research Institute of Heat Engineering in Metallurgy and the Serov Plant of Ferroalloys involving plant-scale experiments on silicochrome granulation. The objective of the study was to determine the causes of explosions (during the process) and to develop preventive safety measures. The potential causes of explosions are theorized to include the clogging of nozzles and obstructing the metal stream, disintegration of the refraction control mesh constraining the feed of the liquid alloy to the granulation tank, fracture of the lining of the overflow trough snout, excessive distance between the trough snout and the nozzles, etc. The relationship between the granulometric composition of the granulated material and the water supply parameters has been established. Recommendations are made to exclude the limitation on water temperature in the granulation tank to 40°C from the standard technical

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SHARANOV, M. A., et al, Stal', No 4, Apr 72, pp 321-323

specifications as well as to introduce other relevant technological refinements. The study proposes a new explosion-free granulation technology. (3 illustrations).

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TITLE--MELTING OF SILICOCHROMIUM BY A TWO STAGE PROCESS IN A CLOSED FURNACE -U-

AUTHOR-(05)-NAKHABIN, V.P., KOROLEV, A.A., KRYLOV, I.A., SCHCHERBIN, A.N., SHATOV, YU.I.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPERATIONAL STEPS EMPLOYED IN SHIFTING ARC FURNACE OPERATION FROM MAKING FERROCHROMIUM TO MAKING SILICOMANGANESE AND THEN OPERATING IT ON A CHARGE CONTG. QUARTZITE 300, COKE BREEZE 126-134, FERROCHROMIUM 130-135, AND STEEL TURNINGS 25-30 KG TO PRODUCE SI 48.8PERCENT, CR 29.7, C 0.05 ALLOY ARE DESCRIBED.

FACILITY: ZAVOD FERROSPLAVOV, SEROV, USSR.

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Therapy

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UDC 615.849.19.015:616-091

KHROMOV, B. M., KOROTKEVICH, N. S., OKSUVA, Ye. Ye., KRYLOV, K. I., PROKOPENKO, V. T., and BOGDANOV, M. P., Leningrad Institute of Postgraduate Medicine imeni S. M. Kirov, Leningrad Institute of Precision Optics and Mechanics, and Institute of Psychoneurology imeni V. M. Bekhterev

"Organ Changes Following Experimental Resection With a Laser Beam"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, 1973, pp 45-48

Abstract: The liver, spleen, and kidneys of rats were resected with a laser beam (energy density 10 to 18 j/mm^2). Immediately after the operation, a linear area of coagulated tissue could be seen on the surface of the organs. Histologic examination from 1 to 33 days after the operation revealed several distinct zones of altered tissues in the 3 operated organs. Under a surface zone of coagulated tissue was a zone of necrosis and then a zone of reactive changes. Still deeper was normal tissue with solitary hemorrhages. A leukocyte reaction became apparent on day 3. Edema and hemorrhages were most pronounced in the spleen. Connective-tissue fibers began to proliferate in the necrotic zone of the spleen on day 3 after the operation and in the liver and kidneys on day 7. The amount of connective tissue gradually increased and formed a scar.

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UDC 541.49:546.791.6

USSR

NIKOL'SKIY, B. P., KRYLOV, L. I., ZAKHVATAYEV, B. B., and LYUBTSEV, R. I.

"Study of the Complex Formation of Actinoids and Lantanoids With o-Phthalic, 3-Nitrophthalic, and 4-Nitrophthalic Acids. 1. Complex Formation of Uranium"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 804-809

Abstract: The complex formation of uranium (IV) with o-phthalic (I), 3-nitrophthalic (II), and 4-nitrophthalic (III) acids was investigated by the ion exchange method. It was shown that in weak acidic solutions (pH 3.2-3.6) complexes are formed only with the anions of the second degree of dissociation of organic acids. The stability constants of uranyl complexes with (I), (II), and (III) at the ionic strength of 1, 0($NaNO_3$) are respectively $1.3 \cdot 10^4$, $4 \cdot 10^3$ and $4 \cdot 10^3$. It has been shown that introduction of a nitrogroup into position 3 or 4 of the phthalic acid has practically no effect on the stability of uranyl complexes in aqueous solutions.

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